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**AUTHORITY**

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TO:	unclassified
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AUTHORITY	
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U. S. NAVAL PROVING GROUND  
DAHLGREN, VIRGINIA

REPORT NO. 1229

TASK ASSIGNMENT NPG-Re3c-321-4-53

3rd Partial Report

BOMB, DEMOLITION 3000 LB., T55; GUNFIRING TEST OF

FINAL Report

Copy No. 9

Task  
Assignment NPG-Re3c-321-4-53

Classification CONFIDENTIAL

54AA-3551

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Bomb Demolition 3000 lb. T55; Gunfiring Test of

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PART A

SYNOPSIS

1. The tests reported herein were conducted to compare the impact performances of token-loaded and inert-loaded 3000 lb. Demolition Bombs T55.
2. As a result of the test conducted, it is concluded that:
  - a. The 3000 lb. Demolition Bomb T55, token-loaded, will perform as well as the inert-loaded Bomb T55, both being effective when tested against 10" reinforced concrete at 15° obliquity and 1000 f/s striking velocity, provided that an inert filler with adequate compressive strength is used.

Bomb, Demolition 3000 lb. T55; Gunfiring Test of

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Bomb, Demolition 3000 lb. T55; Gunfiring Test of

PART B

INTRODUCTION

1. AUTHORITY:

This test was conducted under the authority of Task Assignment NPG-Re3c-321-4-53 in accordance with reference (a) as modified by reference (b).

2. REFERENCES:

- a. BUORD Rest ltr Re3c-LME:lkf F41-6 of 2 Jan 1952
- b. BUORD Rest ltr Re3c-LME:jk F41-6 of 11 Mar 1952
- c. NPG Conf Report No. 945 of 27 Mar 1952
- d. NAVPROV Conf ltr-OT:DDH:ags All/3c321-4 Ser 35098 of 17 Sep 1953
- e. BOSO 452648

3. BACKGROUND:

The Army Ordnance Department's project for "Research and Development of Bombs for Future Aircraft" includes the development of a 3000 lb bomb, T55. Ballistic tests of inert loaded T55 bombs were conducted by the Naval Proving Ground in the latter part of 1951. Results of these tests were reported in reference (c). Reference (d) reports the results of the first three token loaded 3000 lb Bombs T55 tested at the Naval Proving Ground.

4. OBJECT OF TEST:

The object of this test was to compare the impact performances of token-loaded and inert-loaded 3000 lb Demolition Bombs T55.

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Bomb, Demolition 3000 lb. T55; Gunfiring Test of

5. PERIOD OF TEST:

a. Dates of Project Letters	2 Jan 1952 11 Mar 1952
b. Dates Necessary Material Received	2 Dec 1952 26 Oct 1952
c. Date Commenced Test	22 Jul 1953
d. Date Test Completed	4 Nov 1953

6. REPRESENTATIVES PRESENT:

The following persons witnessed the ballistic tests on the dates shown:

<u>Name</u>	<u>Date</u>	<u>Activity</u>
Mr. G. W. Asprooth	2 Nov 1953	Office of the Chief of Ordnance
Mr. H. D. Barnes	2 Nov 1953	A. C. Smith Corp.
Mr. H. S. Beckman	4 Nov 1953	Office of the Chief of Ordnance
LTCOL Cushman	24 Jul 1953	USAF
Mr. S. K. Einbinder	2 Nov 1953	Picatinny Arsenal
Mr. N. W. Frederickson	2 Nov 1953	Office of the Chief of Ordnance
Mr. S. F. Lawrence	2 Nov 1953	Picatinny Arsenal
Mr. F. Ludden	24 and 31 Jul 1953	Office of the Chief of Ordnance
Mr. O'Neil	24 Jul 1953	Office of the Chief of Ordnance
Mr. O. C. Pototschnik	31 Jul and 4 Nov 1953	Office of the Chief of Ordnance
MAJ C. A. Proctor	31 Jul and 4 Nov 1953	USAF
COL J. H. Shea	4 Nov 1953	USAF

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Bomb, Demolition 3000 lb. T55; Gunfiring Test of

PART C

DETAILS OF TEST

7. DESCRIPTION OF ITEM UNDER TEST:

Bomb, Demolition, 3000 lb. T55, as supplied by the Army Ordnance Department for this test was 24" in diameter and 94"5 in length overall. The bombs were token-loaded with tritonal. Three of the bombs contained a charge of approximately 100 lbs. in the nose section. This charge consisted mainly of tritonal with a layer of TNT to separate the tritonal from the inert vermiculite-cement filler. The remaining two bombs contained 60 lbs. of tritonal. The inert filler in one of these bombs was vermiculite-cement and the other was an inert mixture of 81% PCN, (believed to be polychloronaphthalene) 9% Celite and 10% iron oxide. The base of each bomb was fitted with a special base plate to withstand the pressure of propellant gases during gunfiring. This base plate was also fitted with an eye bolt to assist in loading the bomb through the gun muzzle prior to firing. The nose fuze seat liner in each bomb was supported by a machined aluminum plug. The bombs as tested weighed from 2906 lbs to 2996 lbs.

8. DESCRIPTION OF TEST EQUIPMENT:

- a. Gun: 24" Smooth Bore Type A, Mod 0, No. 235
- b. Propellant: 5"/38 Smokeless Powder SPDN-9830 plus Black Powder Boosters
- c. Targets: Reinforced concrete blocks constructed according to NPG Dwg. No. 2434 of 10 March 1949

9. PROCEDURE:

The bombs were fired from the 24" smooth-bore gun using a propellant charge of 3 sections of smokeless powder SPDN-9830 (5"/38 caliber) made up in 8"/55 bags. A 5 lb. pad of black powder was attached to each section to assist in proper ignition of the charge. Velocities of the bombs were measured by the standard method of firing through coils and measuring time intervals with recording oscilloscopes. The target was

## Bomb, Demolition 3000 lb. T55; Gunfiring Test of

supported in steel butts and was backed with a large sandpile to stop the bomb and assist in recovery. Each fired bomb was recovered and examined for condition prior to firing the next bomb on this program.

## 10. RESULTS AND DISCUSSION:

Detailed firing records, butt impact records and photographs of bombs tested are contained in Appendix (A), Table I, Appendix (B) Tables II through VI, and Appendix (C) Figures 1 through 5. Briefly, the results were as follows:

a. The first bomb was fired at a velocity of 1049 ft./sec. at 10" of reinforced concrete set at 15° obliquity. The bomb deflagrated upon impact, resulting in only partial penetration.

b. The second bomb was fired under the same conditions to confirm the results obtained from the first shot. The striking velocity on this shot was 1001 ft./sec.. The bomb did not deflagrate, but it was recovered in an ineffective condition with the nose section broken open and an indication of partial burning of the tritonal filler.

c. The third bomb was fired against 8" of reinforced concrete set at 15° obliquity with a velocity of 1049 ft./sec.. This bomb deflagrated after penetration.

d. At this time, further testing was postponed upon request of the Army Ordnance representatives present at the firing of the third bomb. The two remaining bombs plus metallurgical samples from the fired bombs were shipped by authority of reference (e) to Picatinny Arsenal for examination.

e. It is understood that all three of the above bombs had been made from the same tubing and that the metal in this tubing was defective. Consequently, in November of 1953, two additional bombs, from two different lots, were received to complete the tests.

f. The fourth bomb, lot PAE 13705, with a vermiculite-cement inert filler was fired against 10" reinforced concrete set at 15° obliquity with a striking velocity of 1003 ft./sec.. This bomb was effective and intact with no deformation.

Bomb, Demolition 3000 lb. T55; Gunfiring Test of

g. The last bomb in this test was fired under the same conditions. This bomb was from lot P&E 13704 and contained an inert filler of PCN. This bomb deflagrated after penetration. An analysis of the PCN filler was made and it was determined that PCN has a compressive strength of approximately 350 lbs per sq. in. and a melting point of 91°C. The lack of sufficient compressive strength in the inert filler (compared with the compressive strength of the explosive used) could contribute to the failure of the bomb. A question was raised as to the possibility of a weld existing circumferentially just aft of the ogive of this bomb. Examination by the hot acid etch method was made and it was determined that no weld existed. A photomicrograph of the section under question is contained in Figure 1 of Appendix (D).

PART DCONCLUSIONS

II. As a result of these tests, it is concluded that:

a. The 3000 lb. Demolition Bomb T55, token-loaded, will perform as well as the inert-loaded bomb T55, both being effective when tested against 10" reinforced concrete at 15° obliquity and 1000 ft./sec. striking velocity, provided that an inert filler with adequate compressive strength is used.

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Bomb. Demolition 3000 lb. T55; Gunfiring Test of

The tests upon which this report is based were conducted by:

D. D. HARRIS, Lieutenant, USN  
Terminal Ballistics Firing Officer  
Terminal Ballistics Department

This report was prepared by:

D. D. HARRIS, Lieutenant, USN  
Terminal Ballistics Firing Officer  
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APPROVED: J. F. BYRNE  
Captain, USN  
Commander, Naval Proving Ground

*E. A. Ruckner*

E. A. RUCKNER  
Captain, USN  
Ordnance Officer  
By direction

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NPG REPORT NO. 1229

U. S. NAVAL PROVING GROUND  
DAHLGREN, VIRGINIA

Third Partial Report

on

Task Assignment NPG-Re3c-321-4-53

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Final Report

on

Bomb, Demolition 3000 lb., T55; Gunfiring Test of

X

Project No: NPG-Re3c-321-4-53

Date:

Copy No: 9

No. of Pages: 8

JAN 19 1954

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NPG REPORT NO. 1229

Bomb, Demolition 3000 lb. T55; Gunfiring Test of

TABLE I

SUMMARY OF FIRING CONDITIONS

Date Fired 1953	Bomb Lot No. 41221	Impact No. 10 <sup>m</sup> Cone 15°	Target Obj. Partial	Pene-tration (f/s)	Str. Vel. (t.s.i.)	Breech Press (t.s.i.)	Powder Charge Powder	Remarks
22 Jul	JAS-1	41221	10 <sup>m</sup> Cone 15°	Partial	1049	2.6	135 1b of SPDN-9830 Plus 15 1b Black Powder	Bomb deflagrated on impact.
24 Jul	JAS-1	41255	10 <sup>m</sup> Cone 15°	C	1001	2.5	129 1b of SPDN-9830 Plus 15 1b Black Powder	Bomb ineffective nose section broke open - tritonal filler partially burned.
31 Jul	JAS-1	41274	3 <sup>m</sup> Cone 15°	C	1024	2.6	129 1b of SPDN-9830 Plus 15 1b Black Powder	Bomb deflagrated after impact.
2 Nov	PAB-13705	41586	10 <sup>m</sup> Cone 15°	C	1003*	2.5	129 1b of SPDN-9830 Plus 15 1b Black Powder	Bomb effective and intact with no deformation
4 Nov	PAB-13704	41587	10 <sup>m</sup> Cone 15°	C	1024	2.5	129 1b of SPDN-9830 Plus 15 1b Black Powder	Bomb deflagrated after impact

\*12 ft/sec.  
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APPENDIX A

REF: (a)

NPG Conf Report No. 1229 of

## TEST OBJECT

Test of 3000# Demolition Bomb T55E5 Tritonal loaded

IMPACT NUMBER	41255
DATE OF IMPACT	7-24-53
BUTT NO	F

CONCRETE		BLOCK		BOMB	EXPLOSIVE
Gauge		CLASS		CALIBER	TYPE
10"	0			24"	U. S. Bomb
MANUFACTURER		CONTRACT		MANUFACTURER	LOT NO
GROUP	NO	#5		Joliet Arsenal	JA-5-1
DIMENSIONS				MARK	MOO
10" x 15" x 15"				T55E3	
IMPACT DATA				PROJECTILE NO	YEAR OF SPECIFICATION
OBliquity	PENETRATION			CAPPED	LENGTH (Uncapped)
15°				<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
THICKNESS AT IMPACT	NO. OF IMPACT ON PLATE			WEIGHT (Capped)	WEIGHT (Uncapped)
-					2996#
DISTANCE FROM NEAREST IMPACT	THROUGH OPENING			FUZE	FILLER
	C				TNT and Tritonal 90%
DISTANCE FROM	DISTANCE FROM			CONDITION AFTER FIRING	Vermiculite-cement
FLAKING FRONT	TOP	BOTTOM	RIGHT	<input type="checkbox"/> EFFECTIVE	<input checked="" type="checkbox"/> INEFFECTIVE
SPUR	DISH			Bomb ineffective - nose section	
CRACKS	BULGE			broken open: Tritonal filler	
BUTTON				partially burnt.	
<input type="checkbox"/> THROWN <input type="checkbox"/> STARTED					
VELOCITY (F.S.)					
DESIRED	OBTAINED			<input type="checkbox"/> MUZZLE	<input type="checkbox"/> STRIKE <input checked="" type="checkbox"/> MEAN 1001
REMARKS					

SPDN-9830 = 3 sections, 43.0# each  
 + 1-5# D.P. booster each section

e/d	F(e/d,θ)	RECOMMENDATION
		<input type="checkbox"/> ACCEPT <input type="checkbox"/> REJECT
SIGNATURE	TITLE	
<u>L.D. BAHNS</u>	PLATE BATTERY OFFICER	

REF: (a)

NPG Conf Report No. 1229 of

IMPACT NUMBER	41221
DATE OF IMPACT	7-22-53
BUTT NO	F

## TEST OBJECT

Test of 300% Demolition Level T55E5 Tritonal Loaded

CONCRETE	STEEL	BLOCK	BOMB	SPECIMEN
GAUGE	CLASS		CALIBER	TYPE
10 <sup>1/2</sup>			24"	U. S. Bomb
MANUFACTURER	CONTRACT		MANUFACTURER	LOT NO
			Joliet Arsenal	-
GROUP	NO	#5	MARK	MOD
			T55E5	-
DIMENSIONS			PROJECTILE NO	YEAR OF SPECIFICATION
10" x 15" x 15"				...
IMPACT DATA			CAPPED	LENGTH (Uncapped)
OBliquity	PENETRATION	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	WEIGHT (Uncapped)
15°				2986g
THICKNESS AT IMPACT	NO. OF IMPACT ON PLATE		FUZE	FILLER
	5			T.T. and Tritonal- 90%
DISTANCE FROM NEAREST IMPACT	THROUGH OPENING		CONDITION AFTER FIRING	Vermiculite-cement
			<input type="checkbox"/> EFFECTIVE	<input checked="" type="checkbox"/> INEFFECTIVE
DISTANCE FROM	DISTANCE FROM		Bomb deflagrated upon impact.	
<input type="checkbox"/> TOP <input type="checkbox"/> BOTTOM	<input type="checkbox"/> RIGHT <input type="checkbox"/> LEFT			
FLAKING FRONT	FLAKING BACK			
SPUR	DISH			
CRACKS	BULGE			
BUTTON				
<input type="checkbox"/> THROWN <input checked="" type="checkbox"/> STARTED				

## Impact Dimensions

## VELOCITY (F.S.)

DESIRED	OBTAINED	<input type="checkbox"/> MUZZLE	<input type="checkbox"/> STRIKING	<input checked="" type="checkbox"/> MEAN	1049
---------	----------	---------------------------------	-----------------------------------	--	------

## REMARKS

Chg: 135g SDW-9830, + 1-5g BP Booster each section  
 3 sections: 45g each

Time fired: 1205

Gun: 24" Type A-0 #235

a/d	F(±d,δ)	RECOMMENDATION
		<input type="checkbox"/> ACCEPT <input type="checkbox"/> REJECT

SIGNATURE	TITLE
/s/ D. D. HARRIS	PLATE BATTERY OFFICER

REF: (a)

NPG Conf Report No. 1229 pg

IMPACT NUMBER	41274
DATE OF IMPACT	7-31-53
BUTT NO	F

TEST OBJECT

Test of 360G<sub>n</sub> Demolition Bomb T55 Tritonal Loaded

CONCRETE	ROCK	IRON	PLATE
GAUGE	CLASS	CALIBER	TYPE
8"		24"	T55 - U. S.
MANUFACTURER	CONTRACT	MANUFACTURER	LOT NO
GROUP	NO	MARK	MOD
DIMENSIONS	8" x 15' x 15"	PROJECTILE NO	YEAR OF SPECIFICATION
IMPACT DATA		CAPPED	LENGTH (Uncapped)
OBliquity	PENETRATION	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	WEIGHT (Capped)
15°	Complete		WEIGHT (Uncapped)
THICKNESS AT IMPACT	NO. OF IMPACT ON PLATE	FUZE	FILLER
8"	1	-	TNT and Tritonal 90%
DISTANCE FROM NEAREST IMPACT	THROUGH OPENING	CONDITION AFTER FIRING	Vermiculite-cement
0	52" x 65"	<input type="checkbox"/> EFFECTIVE <input checked="" type="checkbox"/> INEFFECTIVE	<input checked="" type="checkbox"/> INEFFECTIVE
DISTANCE FROM	DISTANCE FROM	Bomb deflagrated after penetration:	
<input checked="" type="checkbox"/> TOP <input type="checkbox"/> BOTTOM	<input type="checkbox"/> RIGHT <input checked="" type="checkbox"/> LEFT	split open	
FLAKING FRONT	FLAKING BACK		
59" x 70"	58" x 70"		
SPUR	DISH		
none	none		
CRACKS	BULGE		
none	none		
BUTTON			
<input checked="" type="checkbox"/> THROWN <input type="checkbox"/> STARTED			
Impact Dimens: 55" x 69"		VELOCITY (F.S.)	
DESIRED	OBTAINED	<input type="checkbox"/> MUZZLE	<input type="checkbox"/> STRIKING
		<input checked="" type="checkbox"/> MEAN	1024

## REMARKS

SPLN-9830, 3 sections, 43" each, total 129"  
 + 1-5" BP Booster each section

GUN: 24<sup>0</sup>0 Mk Type A - O #235

c/d	F(c/d, 0)	RECOMMENDATION
		<input type="checkbox"/> ACCEPT <input type="checkbox"/> REJECT
SIGNATURE	TITLE	
/s/ D. D. HARRIS	PLATE BATTERY OFFICER	

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TABLE IV

APPENDIX B

NAVAL PROVING GROUND, DAHLGREN, D.C.

BUTT IMPACT RECORD  
PNMC-NPG-314U. S. NAVAL PROVING GROUND  
DAHLGREN, VA.

REF: (a)

NPG Conf Report No. 1229 of

IMPACT NUMBER	41586
DATE OF IMPACT	11-2-53
BUTT NO	
Butt F	

## TEST OBJECT

Test of 3000 lb Demolition Bomb T55E3 Tritonal Loaded

CONCRETE	PLATE	BLOCK	BOMB	PROJECTILE
GAUGE	CLASS		CALIBER	TYPE
10"			24"	Bomb
MANUFACTURER	CONTRACT		MANUFACTURER	LOT NO
NPG			A.O. Smith Corp.	PAE 13705
GROUP	NO	#13	MARK	MOD
DIMENSIONS	10" x 10" x 12"		PROJECTILE NO	YEAR OF SPECIFICATION
			#1	
IMPACT DATA			CAPPED	LENGTH (Uncapped)
OBliquity	PENETRATION		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	WEIGHT (Capped)
15°	Complete			WEIGHT (Uncapped)
THICKNESS AT IMPACT	NO. OF IMPACT ON PLATE		FUZE	FILLER
10"	#1			Vermiculite-Cement #60 Tritonal (80/20)
DISTANCE FROM NEAREST IMPACT	THROUGH OPENING		CONDITION AFTER FIRING	
0	32" x 33"		<input checked="" type="checkbox"/> EFFECTIVE <input type="checkbox"/> INEFFECTIVE	
DISTANCE FROM	DISTANCE FROM		Bomb effective and intact; no deformation; base plate torn off.	
<input checked="" type="checkbox"/> TOP <input type="checkbox"/> BOTTOM	RIGHT <input checked="" type="checkbox"/> LEFT		deformation; base plate torn off.	
FLAKING FRONT	FLAKING BACK			
70" x 70"	68" x 74"			
SPUR	DISH			
0	0			
CRACKS	BULGE			
0	0			
BUTTON	<input checked="" type="checkbox"/> THROWN <input type="checkbox"/> STARTED			

## VELOCITY (F.S.)

DESIRED	OBTAINED	<input type="checkbox"/> MUZZLE	<input type="checkbox"/> STRIKING	<input checked="" type="checkbox"/> EST. <u>1003 ft/sec</u>
---------	----------	---------------------------------	-----------------------------------	---

## REMARKS

Wt. of Chg.: 129% SPDN-9830, 3 sections, 43% per section  
+ 3-5% BP Booster

Guns: 24" Type A-0 #235

r/d	f(r/d,θ)	RECOMMENDATION
		<input type="checkbox"/> ACCEPT <input type="checkbox"/> REJECT
SIGNATURE		TITLE
/s/ D. D. HARRIS		PLATE BATTERY OFFICER

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TABLE V

A. FELIX B

NAVY-DOPO PREC. WASH., D.C.

BUTT IMPACT RECORD  
PRNC-NPG-314U. S. NAVAL PROVING GROUND  
DAHLGREN, VA.

REF: (a)

NPG Conf Report No. 1229 of

TEST OBJECT

Test of 3000# Demolition Bomb T55E3 Tritonal loaded

IMPACT NUMBER	41587
DATE OF IMPACT	11-4-53
BUTT NO	F

CONCRETE	REINFORCED BLOCK	BOMB	X55E3XXXX
GAUGE	CLASS	CALIBER	TYPE
10"		24"	Bomb
MANUFACTURER	CONTRACT	MANUFACTURER	LOT NO
NPG		A.O. Smith Corp.	PAE 13704
GROUP	NO	MARK	MOO
	14	T55E3	
DIMENSIONS	30" x 10" x 12"	PROJECTILE NO	YEAR OF SPECIFICATION
		#2	
IMPACT DATA		CAPPED	LENGTH (Uncapped)
OBliquity	PENETRATION	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
BLOCK EURED		WEIGHT (Capped)	WEIGHT (Uncapped)
THICKNESS AT IMPACT	NO. OF IMPACT ON PLATE		2908#
NO MEASUREMENTS		FUZE	FILLER PCN
DISTANCE FROM NEAREST IMPACT	THROUGH OPENING	CONDITION AFTER FIRING	60% Tritonal (80/20)
		<input type="checkbox"/> EFFECTIVE <input checked="" type="checkbox"/> INEFFECTIVE	
DISTANCE FRM	DISTANCE FRM	Deflagrated after penetration;	
<input type="checkbox"/> TOP <input type="checkbox"/> BOTTOM	<input type="checkbox"/> RIGHT <input type="checkbox"/> LEFT	split open	
FLAKING FRONT	FLAKING BACK		
SPUR	DISH		
CRACKS	BULGE		
BUTTON			
<input type="checkbox"/> THROWN <input type="checkbox"/> STARTED			

## VELOCITY (F.S.)

DESIRED	OBTAINED	<input type="checkbox"/> MUZZLE	<input type="checkbox"/> STRIKE	<input checked="" type="checkbox"/> MEAN
				1024

## REMARKS

Wt. of Chg. & 129# SPDN-9830  
 3 sections: 43# per section  
 + 3-5# PB Boosters

Guns: 24" MK A-0 x 235

1/8	F(1/8,0)	RECOMMENDATION
		<input type="checkbox"/> ACCEPT <input type="checkbox"/> REJECT
SIGNATURE <i>/s/</i>	D. D. HARRIS	TITLE PLATE BATTERY OFFICER

CONFIDENTIAL

TABLE VI

APPENDIX B

7  
KELLY SPINN MFG. CO., INC.

NP9-63906

Impact No.  
41221

22 July 1953

Obliquity  
 $15^\circ$

Thickness  
 $10"$  clone

Striking vel. (f/s)  
1049

Penetration  
Partial

Remarks  
Bomb deflagrated  
upon impact.

FIGURE 1



NP9-63907

24 July 1953

Impact No. 41255      Obliquity 15°      Thickness 10" conc

Striking      Vel. (r/s) 1001  
Penetration C

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Remarks  
Bomb ineffective-nose section  
Broken open-partial burning  
of tritonal filler.

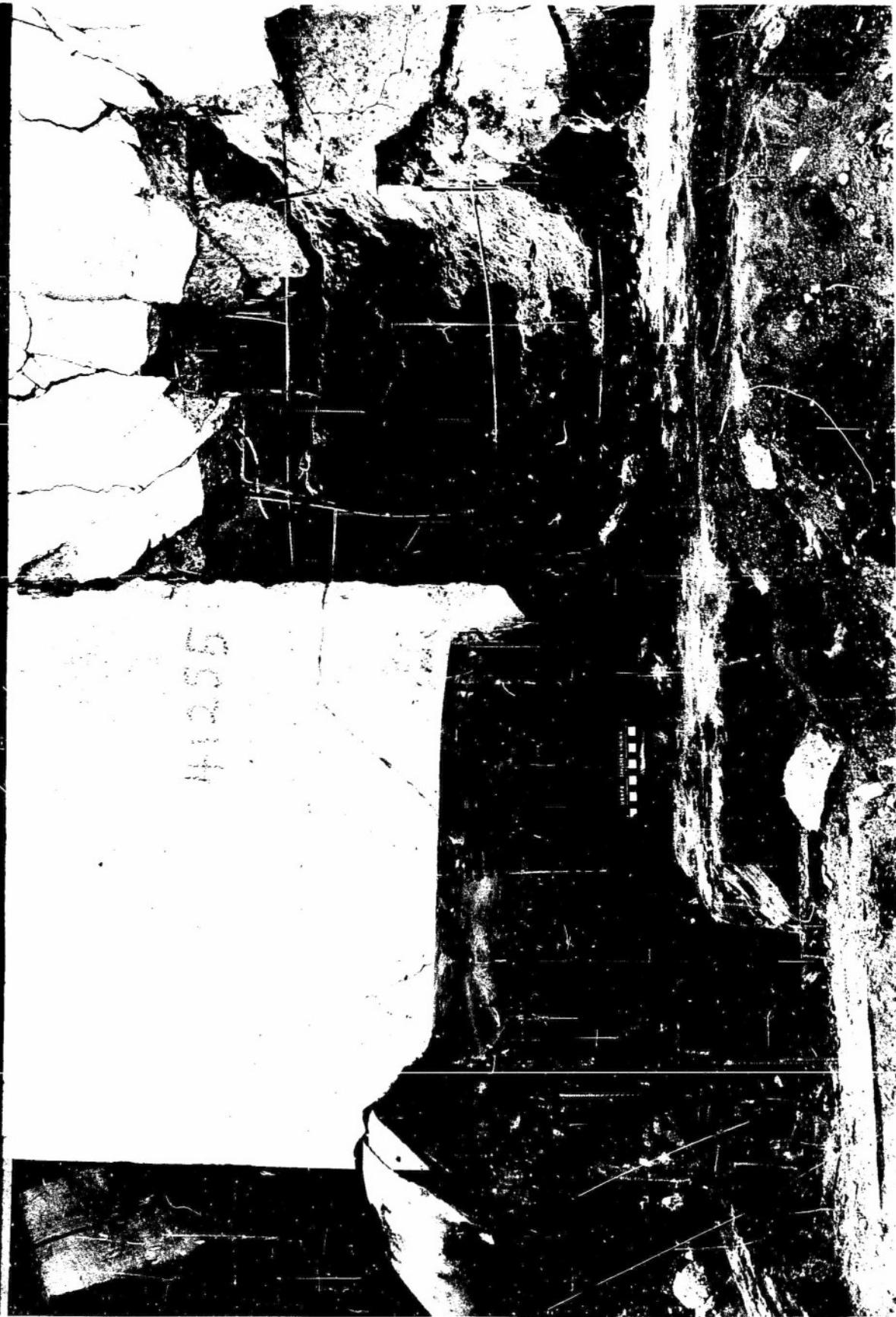


FIGURE 2

<u>Impact No.</u>	411274
<u>Thickness</u>	8" conc
<u>Obliquity</u>	15°
<u>Striking vel. (f/s)</u>	1024
<u>FIGURE 3</u>	

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Remarks  
Bom deflagrated  
after impact.



MPS-64605

Impact No.  
41586

Thickness  
 $10^{\text{m}}$  conc

S.V.(r/s)  
 $1003 \pm 12$

2. November 1953

CONFIDENTIAL

Remarks  
Bomb effective and intact.  
No deformation.

Appendix C

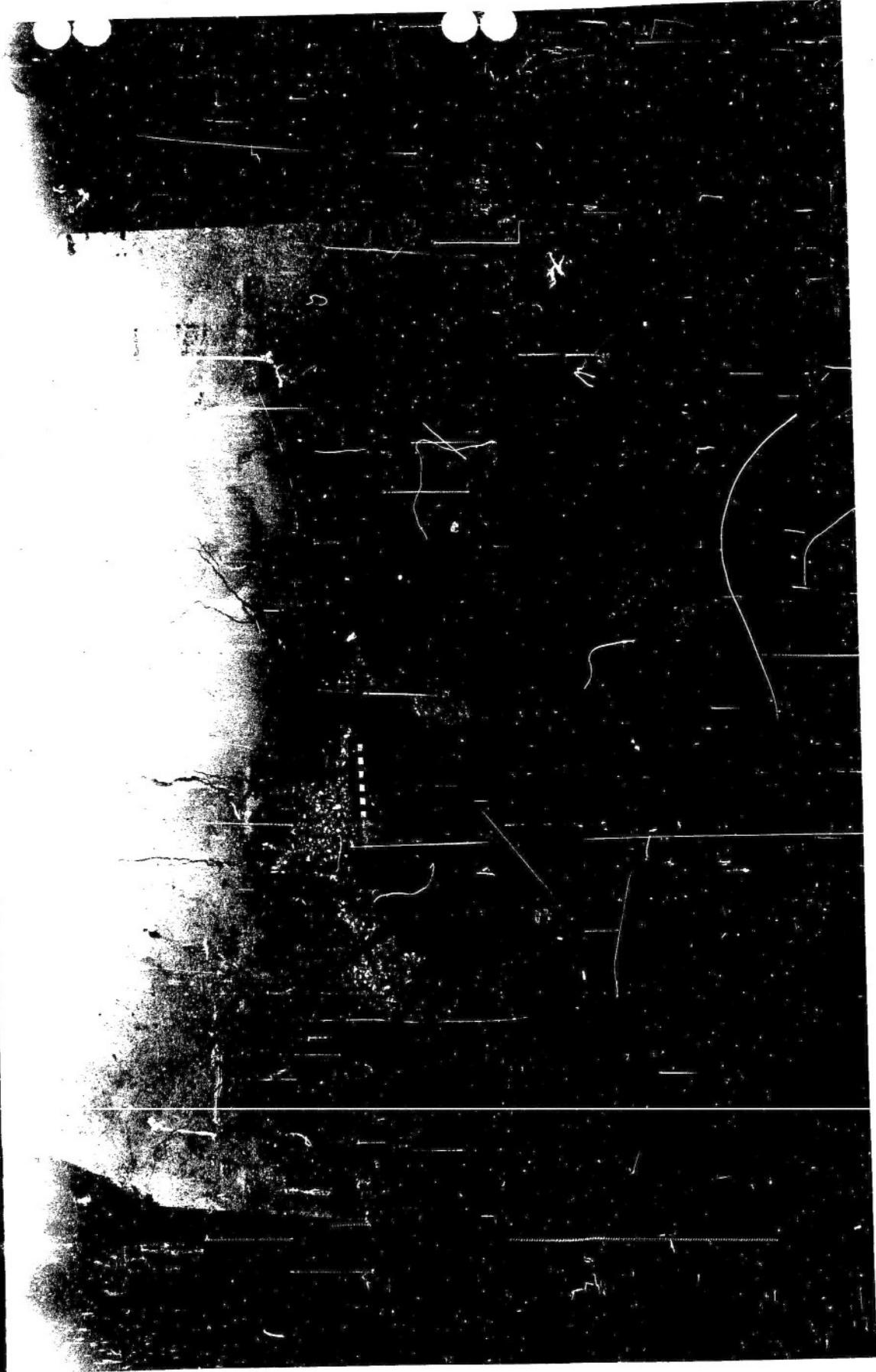


Figure 4

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Section through fracture of  
3600 lb. P-35 Demolition Bomb after min. fire test.

Etched with 50% HCl - 50% H<sub>2</sub>O for 20 minutes at 160°F.

Magnification 6.4 X

NP9-64537

Figure 6

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Appendix D

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NPG REPORT NO. 1229

Bomb, Demolition 3000 lb. T55; Gunfiring Test of

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APPENDIX E

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Bomb, Demolition 3000 lb. T55; Gunfiring Test of

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APPENDIX E